Consciousness: Our awareness of *ourselves and our environment*

Early Psychology: The "scientific" study of the mind & consciousness

~1900: Freud: "It" hits the fan (Theory of 'consciousness')

~1930-1960: Watson/Behaviorism: Consciousness cannot be studied "scientifically"

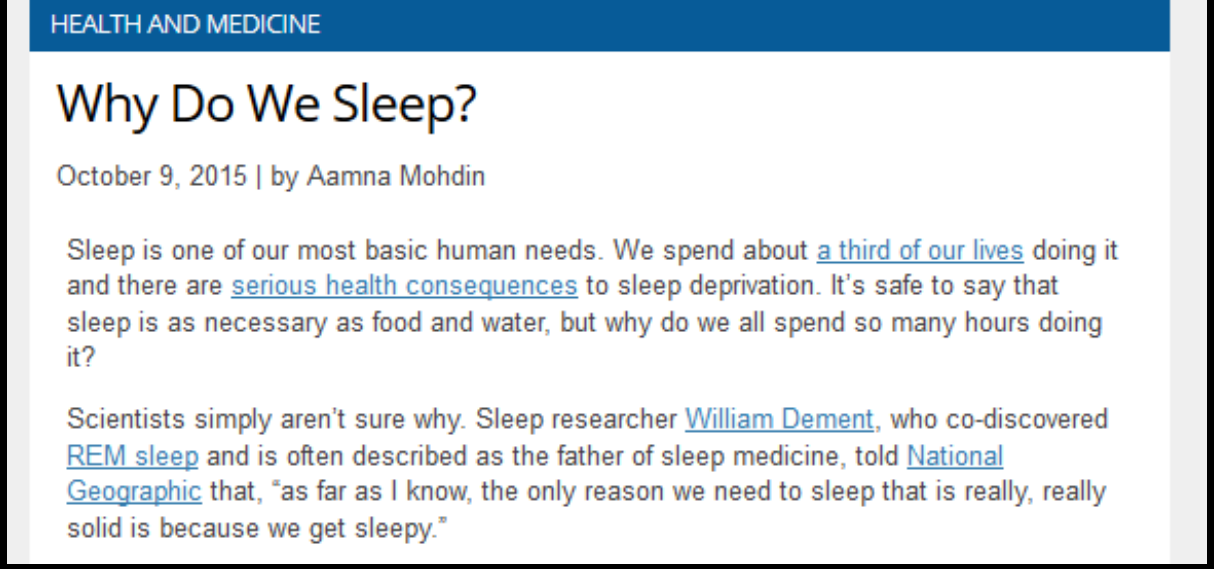
1960's: "Consciousness" is the result of *brain activity* (which can be studied "scientifically")

Modern Psychology: Consciousness

1. Drugs and "altered consciousness"
2. Sleeping, Waking, Attention, Daydreams, Dreaming, etc…
3. "Subconscious control" ("hypnosis/brainwashing")
4. Disorders of consciousness

Dissociation:

a psychological process where an individual loses conscious awareness of his or her self or environment



HEALTH AND MEDICINE

Why Do We Sleep?

October 9, 2015 | by Aamna Mohdin

Sleep is one of our most basic human needs. We spend about a third of our lives doing it and there are serious health consequences to sleep deprivation. It's safe to say that sleep is as necessary as food and water, but why do we all spend so many hours doing it?

Scientists simply aren't sure why. Sleep researcher William Dement, who co-discovered REM sleep and is often described as the father of sleep medicine, told National Geographic that, "as far as I know, the only reason we need to sleep that is really, really solid is because we get sleepy."

"Sleep is one of our most basic needs. We spend about a third of our lives doing…but why do we spend so many hours doing it?

"Scientists simply aren't sure why."

As lying unconscious for an extended period of time made our ancestors vulnerable to attacks, researchers suggest that there must be some advantages to outweigh this considerable risk. The biggest hurdle to understanding why we sleep was that the brain activity that occurs during sleep was largely hidden from researchers. New methods, though still somewhat in their infancy, are helping researchers to better understand the purpose of sleep.

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EVOPSY Principle 2: Natural selection has resulted in brains designed to create *situation-appropriate behavior* predisposed to solve *adaptive problems*

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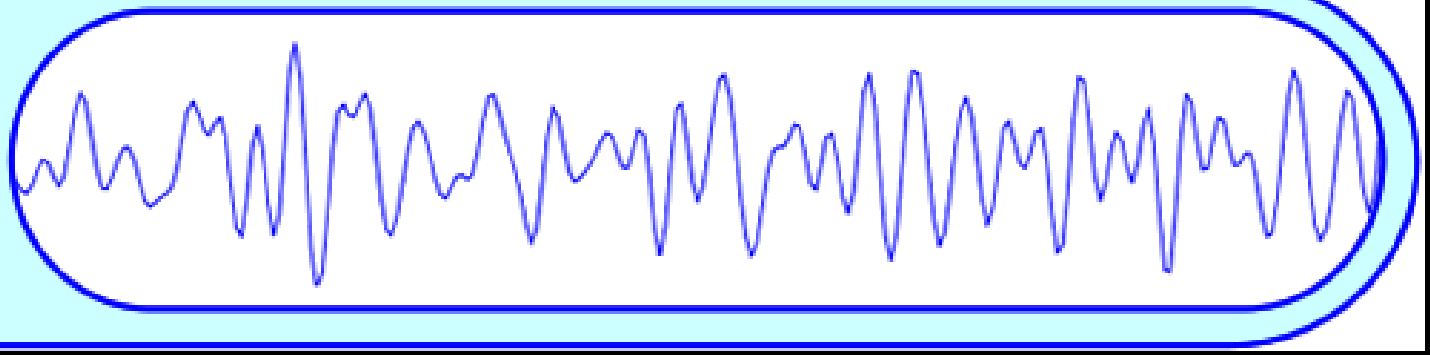
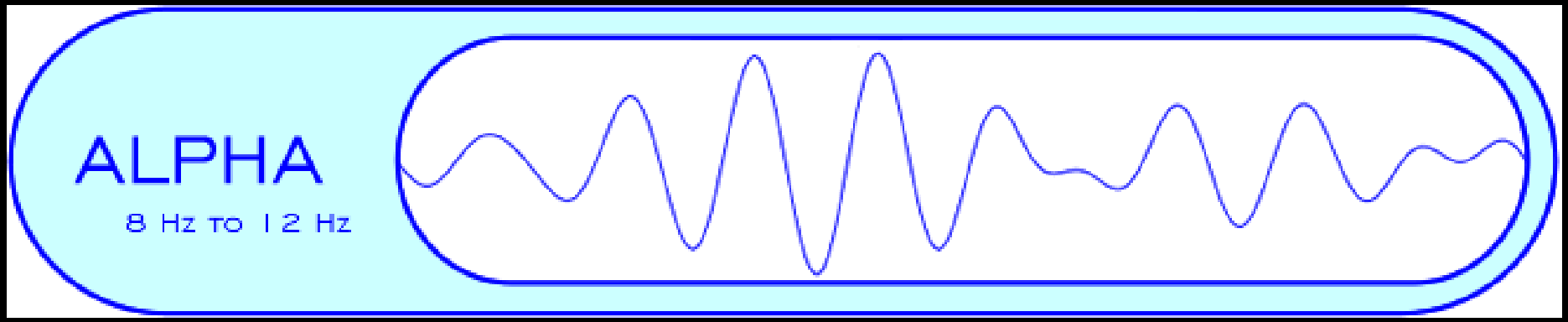
QUESTION: How does this characteristic *(sleep)* allow us (and our stone age ancestors) to more successfully adapt to our environment…to survive and reproduce?

BETA

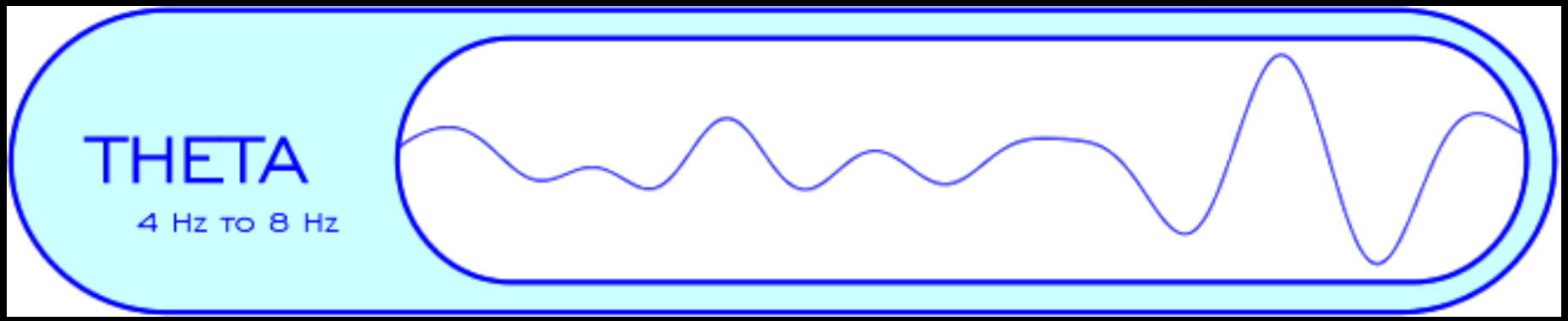
12 Hz and up



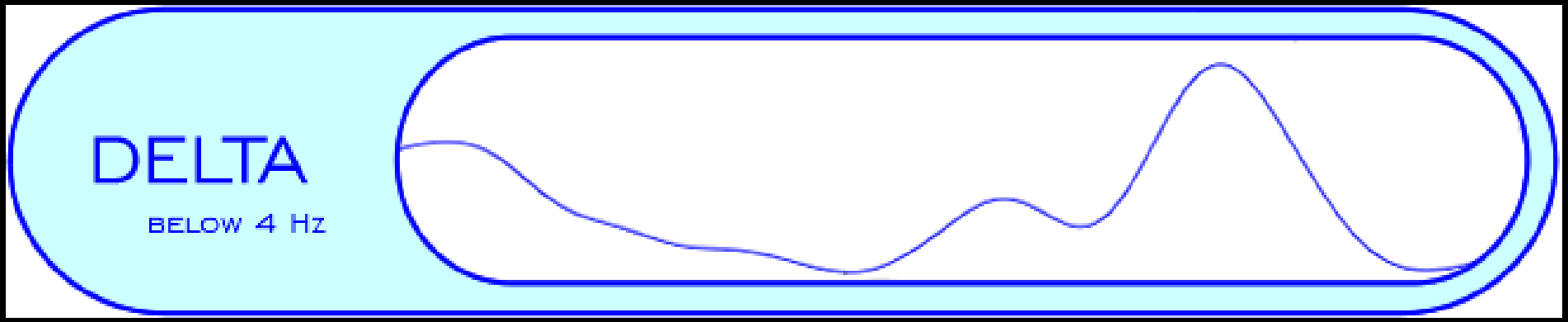
Stage 1: ~2 minutes, *alpha* waves, hallucinations, body "jerks"



Stage 2: ~20 minutes: short, quick brain activity (theta waves; spindles; K-complexes)

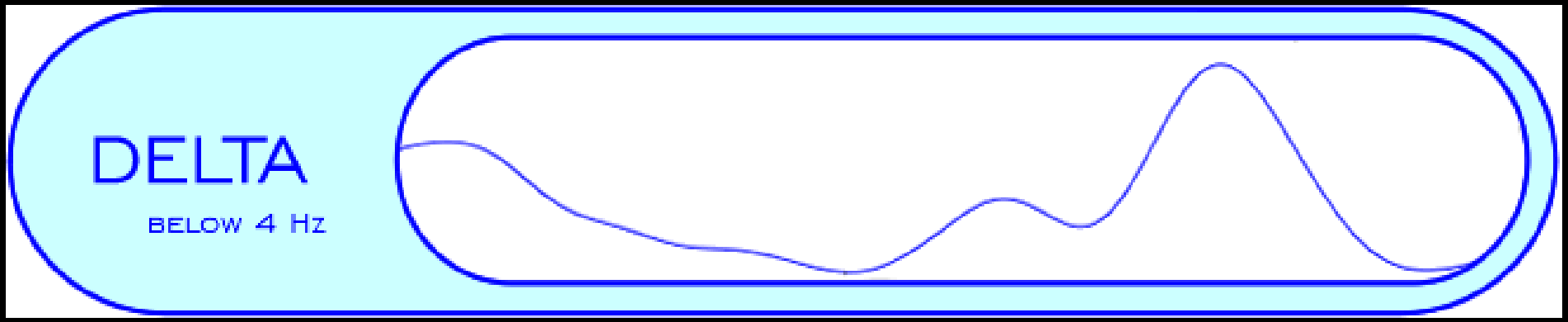


Stage 3: short time, start of *delta* waves



Stage 3: short time, start of *delta* waves

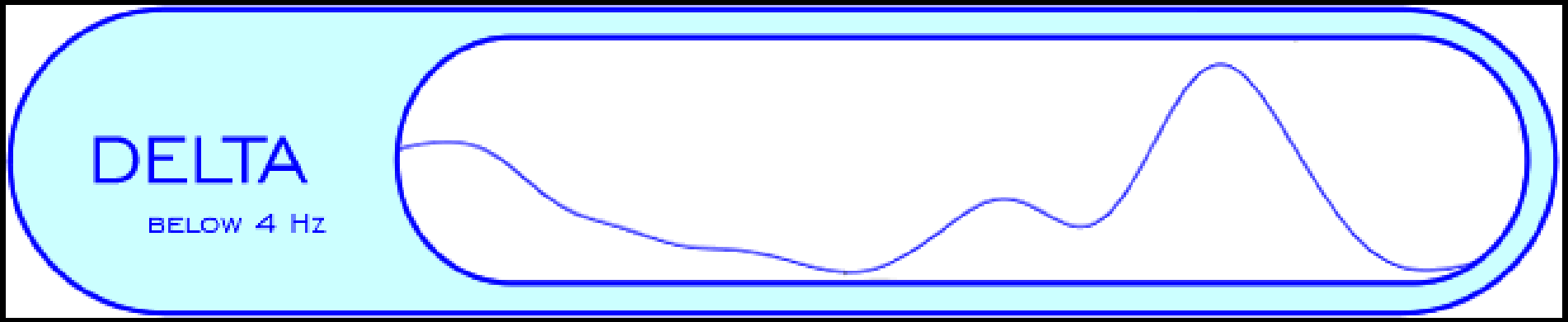
Stage 4: ~30 minutes, slow brain waves (*delta*)

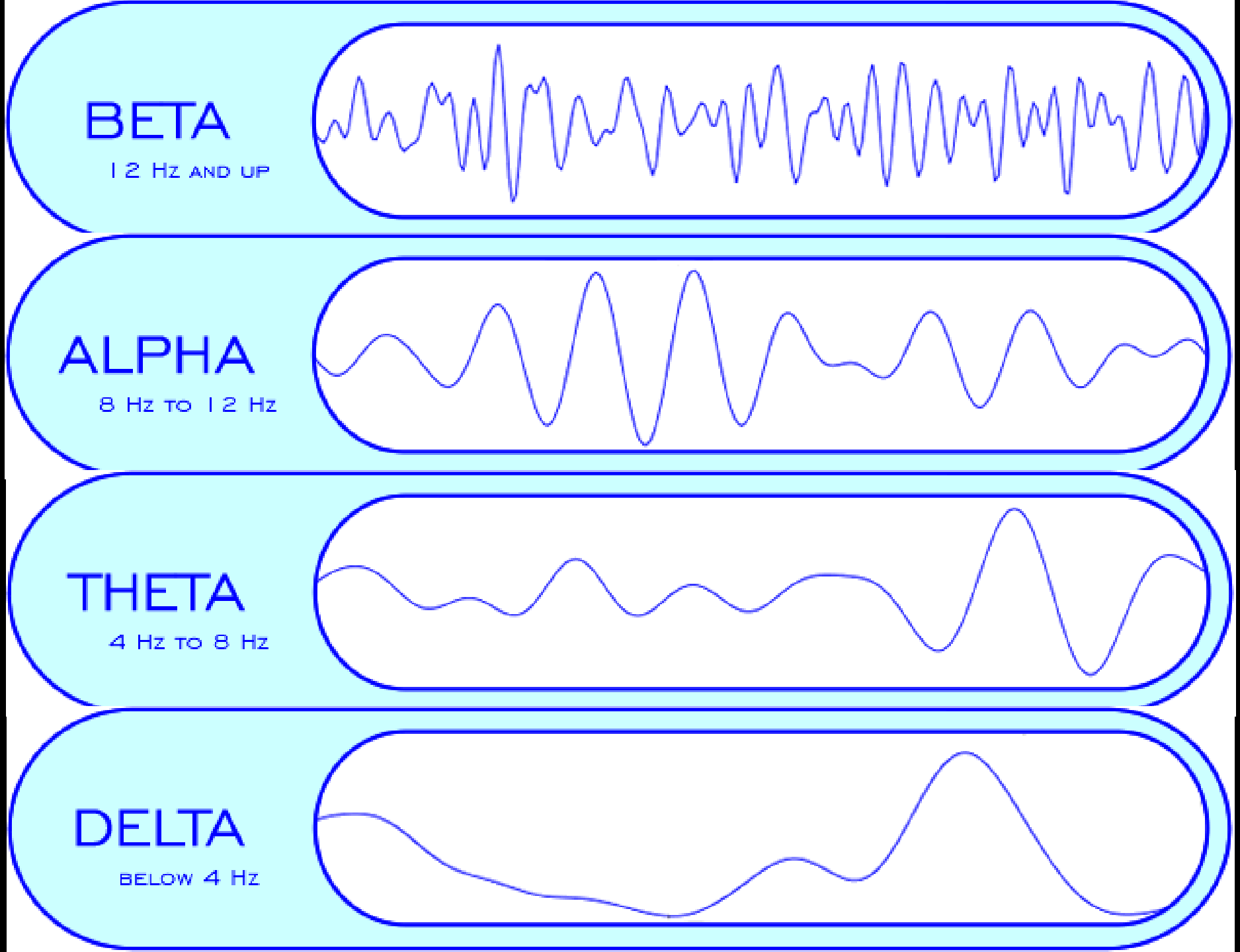


Stage 3: short time, start of *delta* waves

Stage 4: ~30 minutes, slow brain waves (*delta*)

Stages 3 & 4: “Deep Sleep”/“Slow Wave Sleep” (SWS)




BETA
12 Hz and up
ALPHA
8 Hz to 12 Hz
THETA
4 Hz to 8 Hz
DELTA
below 4 Hz

THE BRAIN

Deep Sleep-Promoting Brain Region Discovered

September 17, 2014 | by Justine Alford

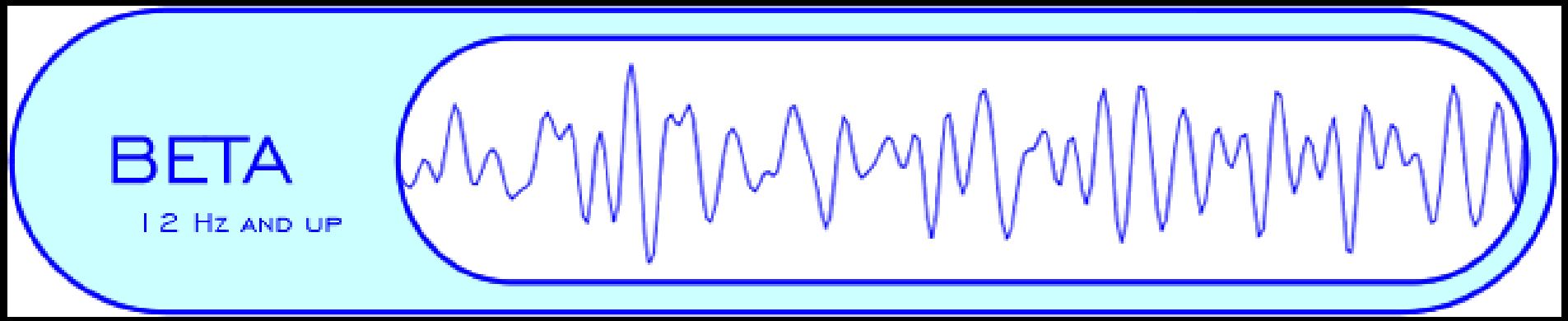
Using sophisticated techniques to switch specific populations of brain cells on and off, researchers have discovered a neuronal circuit that can potently initiate and maintain deep sleep. While more work needs to be done to find out how this bundle of nerves interacts with other known sleep and wake-promoting regions, the researchers believe that the new findings may eventually help scientists develop treatments for various sleep disorders such as insomnia. The work has been published in *Nature Neuroscience*.

To find out more, neuroscientists from Harvard and the University at Buffalo reversibly switched on a bundle of cells in a lower brainstem (medulla) region called the parafacial zone (PZ). To do this, they used a virus to insert "designer" genes into PZ neurons in mice. These genes produced a type of receptor that the researchers could selectively activate, which in turn caused the cells to fire. They found that switching on these neurons potently initiated SWS in mice, regardless of the time of day.

"We are at a truly transformative point in neuroscience where the use of designer genes gives us unprecedented ability to control the brain," Bass said in a news release. "We can now answer fundamental questions of brain function, which have traditionally been beyond our reach, including the 'why' of sleep, one of the more enduring mysteries in neuroscience."

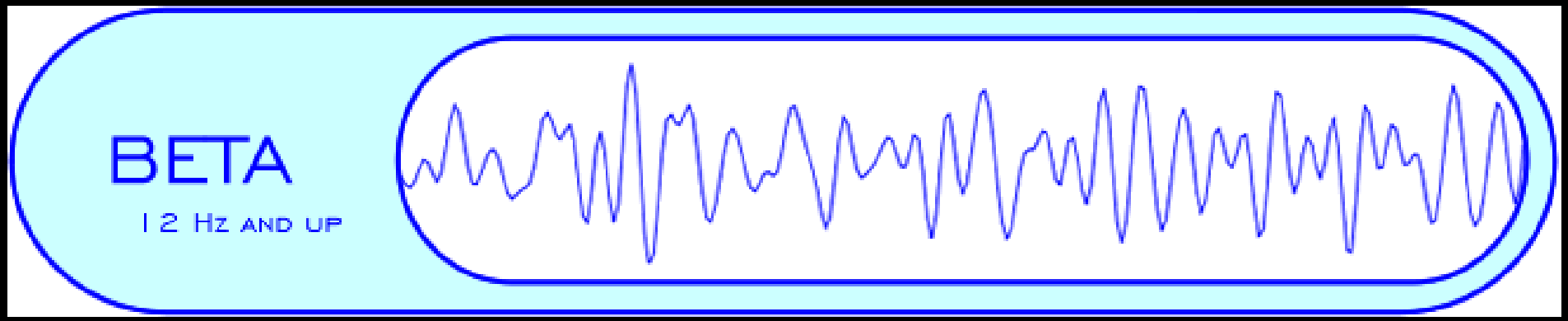
"(N)euroscientists…switched on a bundle of cells in the…(medulla) region called the PZ zone…switching on these neurons…initiated S(low)W(ave)S(leep) in mice, regardless of the time of day…"

REM (Rapid Eye Movement) sleep: ~10 minutes



REM (Rapid Eye Movement) sleep: ~10 minutes

REM = “dreaming”



Sleep Cycles

First: 1, 2, 3, 4 – REM (~60-90 minutes)

Second: 2, 3, 4 – REM

Third, etc.: 2 – REM – 2 – REM – 2 – REM

REM: “Paradoxical Sleep” - internally aroused [heart rate, breathing, brain, eyes, genitals]; external muscles *shut down*

atonia: motor neurons are shut off

What is sleep paralysis?

Sleep paralysis is a temporary inability to move or speak that occurs when a person is waking up or falling asleep.

According to the NHS: “It's not harmful and should pass in a few seconds or minutes, but can be very frightening.

“Many people have sleep paralysis once or twice in their life, while others experience it a few times a month or more regularly.

Many people have sleep paralysis once or twice in their life, while others experience it a few times a month or more regularly.

Sleep Paralysis: REM sleep ends, but *external muscles* don't wake back up (atonia delays)…

Potentially, dream images continue

REM Rebound: We will *"make up"* REM sleep at the expense of other stages

REM is the most important sleep – sleep has *physiological importance*

SCIENCE

Bad Dreams Are Good

Your night life prepares you for what's to come.

BEN HEALY APRIL 2019 ISSUE

WHAT ARE dreams for? A handful of theories predominate. Sigmund Freud famously contended that they reveal hidden truths and wishes.

"WHAT are dreams for? A handful of theories predominate. Sigmund Freud famously contended they reveal hidden truths and wishes."

Psychoanalysis: "Analysis" of *consciousness* to understand the *unconscious*

Freud's Dream Approach

Manifest content: *actual events*

Latent content: *unconscious meaning*

EVOPSY Principle #2: Natural selection has resulted in brains designed to create *situation-appropriate behavior* predisposed to solve *adaptive problems*

QUESTION: How does this characteristic *(dreaming)* allow us to more successfully adapt to our environment?

Dreaming allowed humans to *prepare for threats*

If human dreams sound bleak, bear in mind that even negative ones can have positive effects. In a study of students taking a French medical-school entrance exam, 60 percent of the dreams they had beforehand involved a problem with the exam, such as being late or leaving an answer blank. But those who reported dreams about the exam, even bad ones, did better on it than those who didn't. **[14]**

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Activation-synthesis: REM sleep activates the brain creating *imagery*, and the brain synthesizes the images into *stories*…

Hypnosis is a state of human consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion.[1] Theories explaining what occurs during hypnosis fall into two groups. *Altered state* theories see hypnosis as an altered state of mind or trance, marked by a level of awareness different from the ordinary conscious state.[2][3] In contrast, *Non-state* theories see hypnosis as a form of imaginative role-enactment.[4][5][6]

"Hypnosis is a state of human *consciousness*…

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Non-state theories see hypnosis as a form of imaginative *role-enactment*."

Analysis [edit]

Although many popular commentators, including psychologist Margaret Singer,[188] speculate that Applewhite brainwashed his followers, many academics have rejected the "brainwashing" label as an oversimplification that does not express the nuances of the process by which the followers were influenced.[189] Lalich

"Although many popular commentators, including psychologist Margaret Singer, speculate that Applewhite *brainwashed* his followers, many academics have rejected the *"brainwashing"* label as an oversimplification…"

Mind control (also known as **brainwashing**, **reeducation**, **coercive persuasion**, **thought control**, or **thought reform**) is a theoretical indoctrination process which results in "an impairment of autonomy, an inability to think independently, and a disruption of beliefs and affiliations. In this context, brainwashing refers to the involuntary reeducation of basic beliefs and values".[1]

"Mind control/*brainwashing* is a theoretical indoctrination process which results in 'an impairment of *(free will)* (and) an inability to *think independently*' …"

How *complex* can our behavior be with our being unconscious (unaware) of our choices?